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Evaluation of a Salve or Two Novel Winter Teat Dips to Maintain or Enhance Teat Integrity During Winter

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Summary and Implications

Winter conditions can lead to rapid dehydration and cracking of teat tissue, thus increasing mastitis risks. The objectives of these three winter trials were to compare application of a salve or 2 new novel commercial winter teat dip products (> 70% propylene glycol plus fatty acid germicide) to an existing commercially available teat dip (good germicide and skin conditioning) and best management winter milking practices. Overall results for the 3 trials suggest slight (glycol) to no (salve) positive effect on teat end health (especially cracking) when tested in comparison to the use of a good milking and winter dipping practices and a very good commercial post-milking dip used in this herd. There was a slight decrease in % teats cracked with glycol dips following rapid temperature changes. However, none of the treatments were effective in completely alleviating teat end changes due to weather.

Introduction

The teat end or orifice is an important first line of defense in protecting a cow from intramammary infection (IMI). Teat end condition is dynamic; changing based upon exposure to milking machines, chemical damage, environmental or climatological exposure, infectious agents or other trauma (1). Rapid teat end changes can occur during winter (2), and to counter such effects, the use of salves and teat dips with extra skin conditioners have been promoted as a means of maintaining soft and pliable skin and healthy teat ends. The purpose of this study was to evaluate the effectiveness of a salve or two novel winter teat dips in maintaining teat end integrity during winter months.

Materials and Methods

Three separate trials embedded in a 3 year longitudinal observational study were conducted to evaluate the performance of a salve or 2 novel winter teat dips to maintain or enhance teat end health and integrity compared to an effective (germicide and skin conditioning) commercial post milking teat dip and practices used in this herd. Trained observers evaluated all teats of all lactating cows at the ISU Dairy every 2 (trial 3) or 3 days (trials 1 and 2) using the system below: (Table 1).

All trials used a split udder design where right side teats received the usual herd postmilking teat dip (.5 % chlorhexidine with 8% skin conditioners, Nolvasan, Fort Dodge, Inc.) and served as controls. Control teat ends were blotted dry with a cloth towel before parlor exit if wind chills were < 0^0F. Left side teats received either a salve or novel winter teat dip post milking. In trial one, left teats of 160 cows were treated with a germicidal (.5 chloroxynol) salve containing aloe extract, lanolin, and glycerin for 6 weeks (Dec-Jan). During trial 2, left teats of 182 cows were treated with a commercial winter teat dip containing > 70% skin conditioners (propylene glycol) and germicidal fatty acids (Dermasept, Westfalia-Surge) for 8 weeks (Jan-Mar)). During trial 3, left teats of 212 cows were dipped with a different glycol based (>70%) commercial winter dip (Revive, IBA, Inc.) for 5 months from (Oct-Mar).

Results and discussion

Results for trial 1 are shown in Figures 1 and 2. There were no significant differences in teat end scores for all days or overall score (2.36 vs 2.31), or percentage of teats cracked, between treated and control teats (trends toward more problems in salved teats). There were significant changes in teat end scores over time (Figure 1), likely attributed to weather, but these changes were seen in both control and treated quarters. This is further supported by variable percentage of teat ends that were cracked over time (Fig. 2).

Results for trial 2 are shown in Figures 3 and 4. There were no significant differences in teat end scores for all days or overall teat score (2.20 vs 2.21), and in % teats cracked between treated and control teats in trial 2. There were significant changes in teat end scores over time and variable percentage of teat ends that were cracked over time. There was a slight tendency for teats dipped in the glycol dip to have a lower % of teats cracked following decreased temperatures or changes in temperatures.

Results for trial 3 are shown in Figures 5 and 6. Teats dipped with a glycol based dip for 5 months scored significantly lower teat end scores than controls overall (2.71 vs 2.77, p=0.0008). Teats dipped with a glycol based dip also had significantly less cracked teat following decreased temperature during January and March (but no significant differences prior to late January). However, all teats, regardless of dip, showed variability in teat scores and % teats cracked but similar patterns during temperature changes.

Overall results for the 3 trials suggest slight (glycol) to no (salve) positive effect on teat end health (especially cracking) when tested in comparison to the use of a good milking and winter dipping practices and a very good commercial post-milking dip used in this herd. There was a slight decrease in % teats cracked with glycol dips following rapid temperature changes. However, none of the treatments were effective in completely alleviating teat end changes due to weather.

Table 1. Teat end scoring system based on degree of hyperkeratosis and whether teat end tissue was cracked or not.

Teat Scoring system			**Degree of hyperkeratosis or callousing**				
Cracking	none	minor	mild	moderate	severe
No cracking	1	1.5	2	2.5	3
Cracked	---	3.5	4	4.5	5

Figure 1. Average daily teat scores for teats dipped with control dip vs salve in winter.(Trial 1).

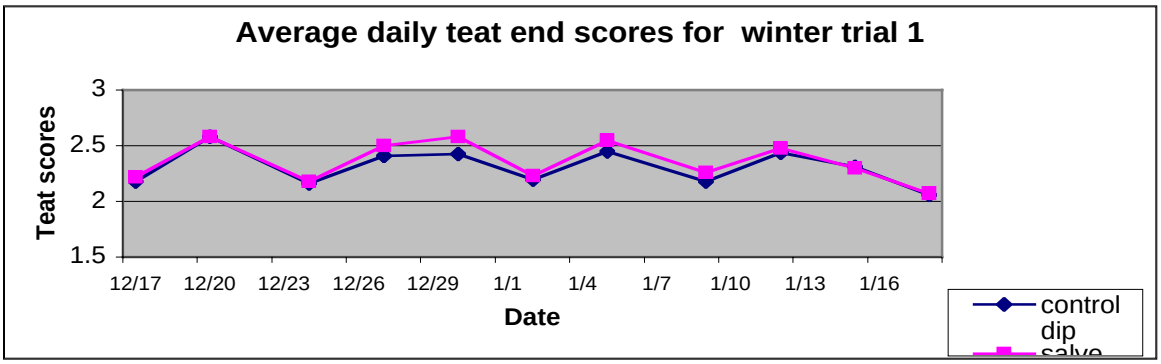


Figure 2. Percentage of cracked teat ends for teats with control dip vs salve in winter. (Trial 1).

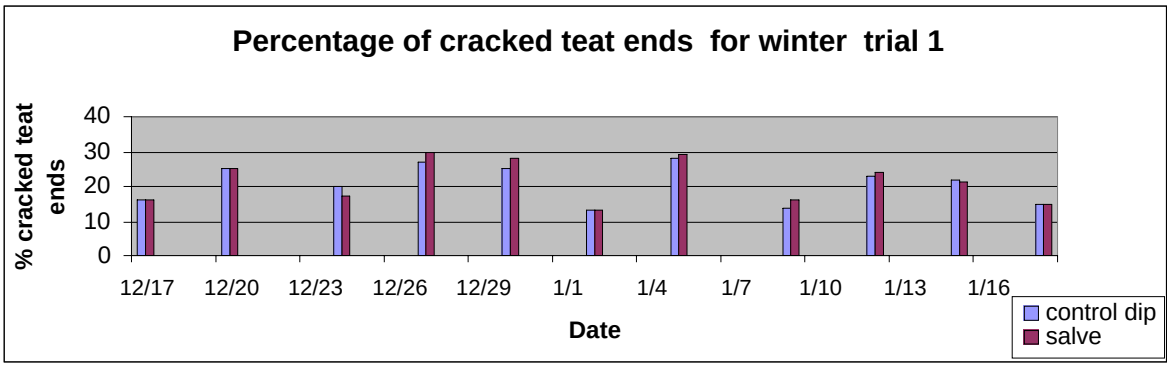


Figure 3. Average daily teat scores for teats dipped with control dip vs > 70% propylene glycol dip in winter.(Trial 2).

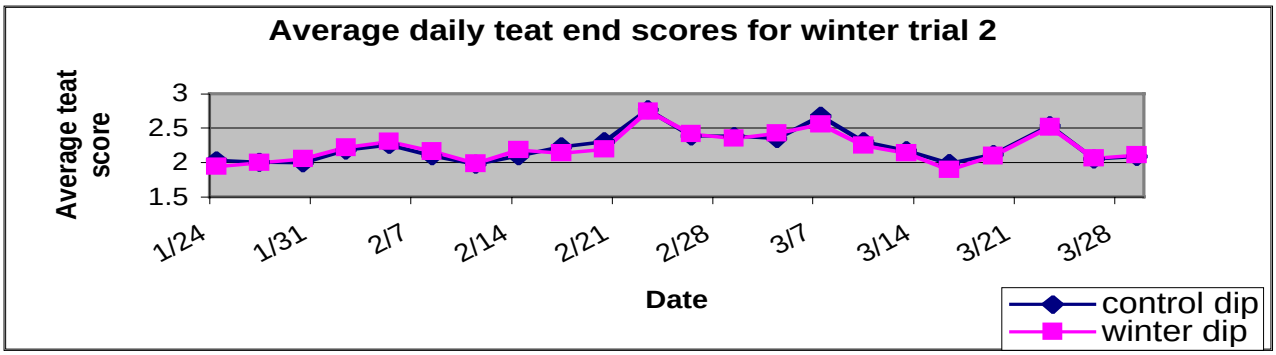


Figure 4. Percentage of cracked teat ends for teats with control dip vs > 70% propylene glycol dip in winter.(Trial 2).

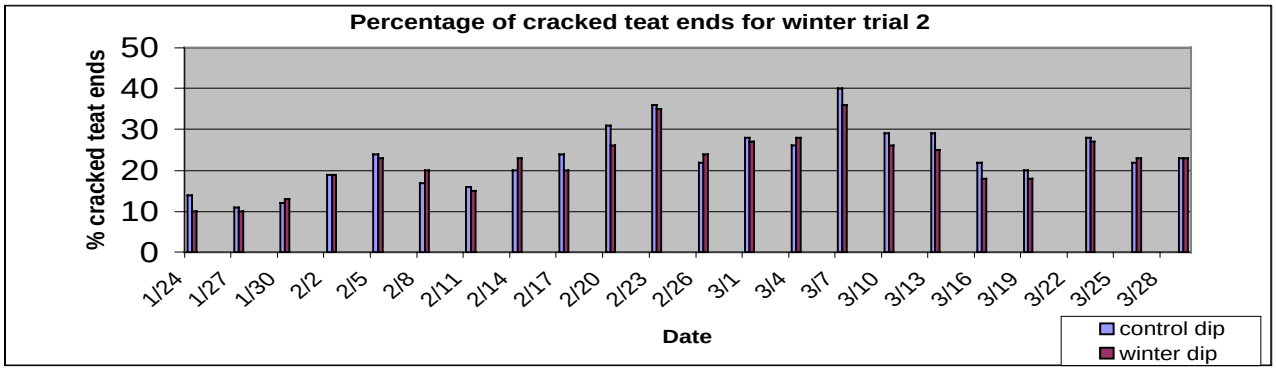
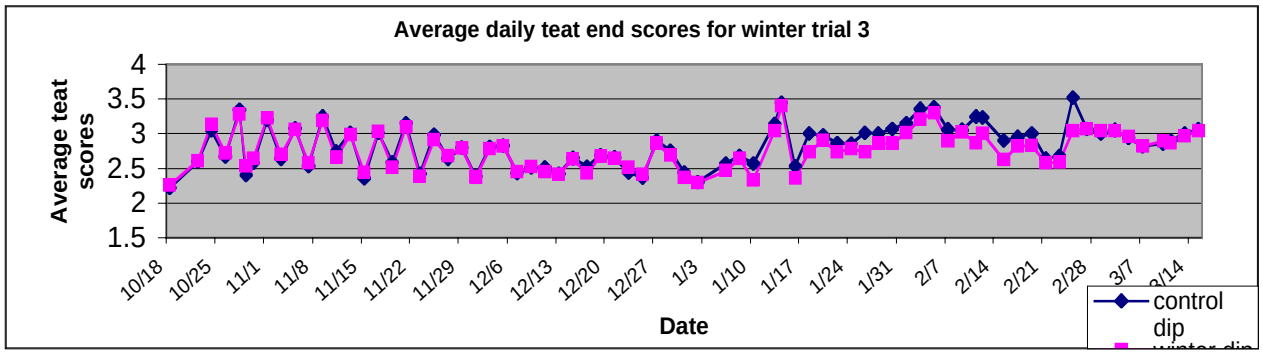


Figure 5. Average daily teat scores for teats dipped with control dip vs > 70% propylene glycol dip in winter.(Trial 3).



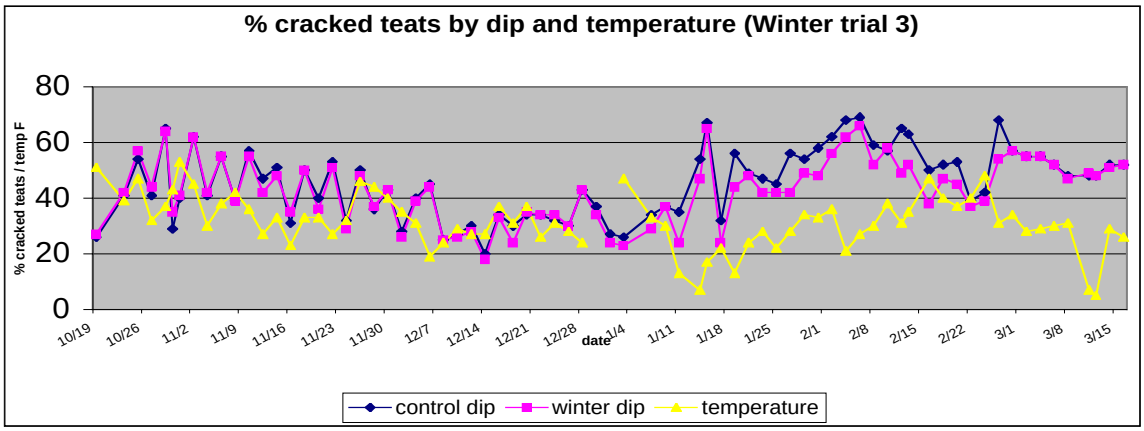


Figure 6. Percentage of cracked teat ends for teats with control dip vs > 70% propylene glycol dip in winter (Trial 3) and temperatures over time.